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**REMARKS**

The Applicant thanks the Examiner for indicating that claims 27, 29, 32-34, 37, 39 and 41 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claim(s). In accordance with this indication, the allowable subject matter of claim 29 is incorporated into independent claim 25 and the allowable subject matter of claim 41 is incorporated into independent claim 40. These amended independent claims are now believed to be allowable. As claims 26, 27, 32-34, and 43 depend, either directly or indirectly, from these amended independent claims, those dependent claims are also believed to be allowable.

Next, claims 42 and 43 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. Claim 42 is canceled from this application and claim 43 is now believed to overcome the raised rejection due to amendments made to claim 40, and the presently pending claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections.

The presently claimed invention provides an apparatus for heat-treating products comprising a retort, a means for heating the retort, a coolant spray means for spraying a liquid coolant onto products received within the retort and a shielding means to prevent the coolant sprayed from the coolant spray means from impinging onto the interior of the retort. It is respectfully submitted that the features of the claims are distinct from the teachings of the cited references for a number of reasons, as discussed below.

It should be noted that the Applicant is the proprietor of U.S. Patent No. 5,857,312 (filed 11 October 1995) which introduced the notion of horizontal axial reciprocating motion during heating and cooling stages. This process resulted in canned foodstuffs being sterilized in, typically, a tenth of the time taken using conventional heating methods and as a result a retort operated using the process of U.S. Patent No. 5,857,312 could be subject to tens of thermal cycles a day rather than two or three as associated with earlier processes.

Conventional retorts for heating canned goods are designed for a lifetime of tens of years on the basis of thermal cycle times of three or more hours. With the methods introduced by U.S. Patent No. 5,857,312 thermal cycle times were reduced to under one hour- in certain

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circumstances down to fifteen minutes. This reduction in time leads to short cycle times which increases the thermal stress loadings on the retort. These can considerably shorten the service life of the retort principally due to the high thermal shock experienced by the retort when cooling water is sprayed onto an interior surface of the retort.

Claims 25, 26, 31, 35, 36 and 40 are then rejected, under 35 U.S.C. § 102(b), as being anticipated by Hice, Sr. et al. '818 (U.S. Patent No. 3,818,818) and Champel '818 (U.S. Patent No. 3,897,818). The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the following remarks.

Hice, Sr. et al. '818 relates to a method of heat treatment including the steps of subjecting the food to be heat treated to super-atmospheric ("S-A") pressure in a gaseous atmosphere prior to the application of heat to the food, applying heat to the food while maintaining the S-A pressure, rapidly cooling the food after the food has been heat treated and removing the gaseous atmosphere under S-A pressure from the food.

Hice, Sr. et al. '818 is concerned with cooking foods and does not describe the cooking vessel to any significant extent apart from the features required to achieve pressurization. Hice, Sr. et al. '818 mentions a cooking apparatus of a "pressure vessel or retort type" (col. 3, Ins. 37-38) however at no point is there any consideration given to the effect of processing food on the cooking vessel involved. Hice, Sr. et al. '818 also discusses in detail the processing of various types of foodstuff in a retort, however, at no time does this reference teach, suggest, disclose or hint at protecting the retort from impingement of coolant spray from the processing done within it or that such protection would provide a benefit. In any event, the Applicant respectfully asserts that the claims of the application are distinct different from the teachings, suggestions, hints and motivations of Hice, Sr. et al. '818 in that this reference fails to teach the use of agitation to speed-up the heating/cooling cycle. Consequently the thermal cycling arising in connection with Hice, Sr. et al. '818 would not appear to differ significantly from those used conventionally prior to Hice, Sr. et al. '818. That is to say, the time it would take for a thermal cycling according to the teachings of Hice, Sr. et al. '818 would typically be three to four hours.

Furthermore, it is respectfully observed that Hice, Sr. et al. '818 does not teach, suggest, disclose or hint at any type of shield being used to substantially prevent the liquid coolant sprayed from the coolant spray means from impinging on an interior of the retort. In

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the raised rejection, the Examiner suggests that the receptacle 54 could be a shielding means. The reference states that the receptacle 54 defines a cooking area 52 (col. 4, lns. 18-20). This receptacle 54 houses a cooling means 100 by which a spray of liquid coolant (water being given as an example) can be directed upon food 92. There is no suggestion in Hice, Sr. et al. '818 that such coolant is prevented from contacting the internal wall of receptacle 54 or that any useful purpose would be served by preventing such contact. If the retort is taken to include outer wall 62 (Fig. 2), then it is subject to contact by steam (added by way of conduit 64) and by coolant (by way of conduit 28 as required). Figure 1 of Hice, Sr. et al. '818 shows standing water in what can only be comparable with the retort of the present invention which is added during the course of processing. In view of the above, the Applicant respectfully asserts that Hice, Sr. et al. '818 fails to in any way teach, suggest, disclose or remotely hint at the currently claimed means of shielding to prevent impingement of coolant on the retort wall.

Turning now to Champel '818, this reference relates to a process of rapidly cooling containers located in a chamber having an at least partially vaporous atmosphere, comprising the steps of introducing a cooling liquid into the chamber which does not come into contact with the containers and a compressed gas which maintains the pressure within the chamber constant while the vapor condenses, and then spraying into the chamber a cooling liquid which does come into contact with the containers and the temperature of which decreases progressively.

Champel '818 teaches an autoclave 1 with an internal jacket 3 within which containers are located. There are two separate means that are used for cooling the containers, a first one 10 of which is located outside of the jacket 3 and a second one 11 for the containers within the jacket 3. The autoclave 1 fails to teach a means for preventing coolant (whether by liquid or vapor) from reaching the interior walls of the autoclave 1. While Champel '818 mentions the desirability of reducing thermal-shock to the containers during heat treatment, this reference does not suggest that thermal-shock to the autoclave is undesirable. As was the case with Hice, Sr. et al. '818, the time for which a complete heat treatment cycle is applied is not clearly specified but it would appear that the processing time for one operational cycle was that associated with existing processes, that is to say measured in several hours.

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In view of the foregoing amendments and remarks, it is respectfully submitted that the raised obviousness rejection, in view of the applied combination of Hice, Sr. et al. '818 and Champel '818, should be withdrawn at this time

Next, claim 28 is rejected, under 35 U.S.C. § 103(a), as being unpatentable over Hice, Sr. et al. '818 or Champel '818 in view of Trescott '858 (U.S. Patent No. 934,858). The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the above amendments and the following remarks.

Trescott '858 relates to a cooking device for treating and conserving food matter and which includes a substantially air tight oven a<sup>6</sup> and means for supplying a comparatively small amount of heat thereto in an aeroform vehicle under pressure. The aeroform vehicle, discussed in column 1, lines 44-46, is used to apply pressure on the food as it cooks such that the heat enters the food and cooks it evenly throughout. Trescott '858 further discusses the use of moisture column 4, lines 73-79 when cooking. It advocates the use of relatively low temperature for the cooking process and, to this end, the oven a<sup>6</sup> is housed within a chamber a. Consequently insofar as any similarity between the features of Trescott '858 and the claims of the application can be found, only the oven a<sup>6</sup> of Trescott '858 is comparable with the retort of the present invention. The Applicant asserts that Trescott '858 provides no shield in the oven a<sup>6</sup> which would prevent the moisture introduced therein from reaching the oven wall. In addition, Trescott '858 is only concerned with cooking, it does not provide for cycling operations where containers are sterilized by heating followed by a cooling cycle, as recited in the pending claims. In view of the foregoing, it is respectfully submitted that the raised obviousness rejection, in view of the applied combination of Hice, Sr. et al. '818, Champel '818 and Trescott '858, should be withdrawn at this time.

Claims 30 and 38 are then rejected, under 35 U.S.C. § 103(a), as being unpatentable over Hice, Sr. et al. '818 of Champel '818 in view of Rogers '805 (U.S. Patent No. 1,010,805). The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the above amendments and the following remarks.

Rogers '805 relates to a sterilizing apparatus for canned goods in which a large number of cans or packages are heated and includes a means for uniformly heating and cooling the cans and for preventing any over-heating, caking or lumping during the process. Rogers '805

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provides a casing 1 into which containers can be placed in a carrier 16 for reciprocation within the casing 1 during heating and cooling. The processing operation taught by Rogers '805 requires that the carrier 16 allow steam to freely circulate during the heating phase and water to freely circulate during the cooling phase, about the cans or packages being processed (col. 2, Ins. 80-84). The Applicant respectfully submits that Rogers '805 fails to in any way teach, suggest, disclose or remotely hint at a shielding for the container. Rogers '805 does provide a drain pipe 15 to withdraw water from the casing 1. Rogers '805 also makes no mention of time saving by using the sterilizing apparatus. Nor does the reference teach of any of hazards associated with the rapid thermal cycling. As such, the Applicant respectfully submits that Rogers '805 made no provision for preventing any of the hazards associated with the rapid thermal cycling in distinct contrast to the claims of the application.

In order to emphasize the above noted distinctions between the presently claimed invention and the applied art, the independent claims of this application now recite the features of "a *shielding means* to substantially prevent the liquid coolant sprayed from the coolant spray means from impinging on an interior of the retort; a *sump tray* mounted at a lower region of the retort *having a drain conduit* extending through a retort wall to drain the liquid coolant from the sump tray; and a plurality of vertically extending plates positioned with their lowermost edges above the sump tray such that the liquid coolant impinging on the plates will be collected in the sump tray". Such features are believed to clearly and patentably distinguish the presently claimed invention from all of the art of record, including the applied art.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Hice, Sr. et al. '818, Champel '818, Campbell '792, Trescott '858 and/or Rogers '805 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not

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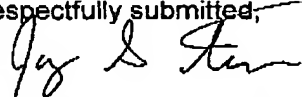
present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



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